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April 22, 2004

FILED ELECTRONICALLY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

**Re: RM-10821; Wireless Telecommunications Bureau Seeks Comment On
MariTEL, Inc. Petition for Declaratory Ruling and National Telecommunications
and Information Administration Petition for Rulemaking Regarding the Use of
Maritime VHF Channels 87B and 88B; NOTICE OF EX PARTE
PRESENTATION;**

**PR Docket No. 92-257; Amendment of the Commission's Rules Concerning
Maritime Communications; NOTICE OF EX PARTE PRESENTATION;**

**ET RM-10743; Commission's Rules to Promote the Use of VHF Public Coast
Station Frequencies; NOTICE OF EX PARTE PRESENTATION.**

Dear Ms. Dortch:

Pursuant to the provisions of Section 1.1206 of the rules and regulations of the Federal Communications Commission ("FCC"), MariTEL, Inc. hereby submits this letter summarizing its *ex parte* presentation in the above-referenced dockets. On April 22, 2004, Dan Smith, President and Chief Executive Officer of MariTEL, Inc., Jason Smith, Vice President of MariTEL, Inc., Gary Smith, Chief Technical Officer, and the undersigned participated in a conference call with Jeffrey Tobias and Tim Maguire, all of the Wireless Telecommunications Bureau, to discuss the attached presentation.

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.

Marlene H. Dortch

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Should there be any questions regarding this matter, please contact the undersigned directly.

Cordially yours,

/s/ Russell H. Fox

Russell H. Fox

Attachment

cc: C.I. Pearson (via FedEx)
Frederick R. Wentland (via FedEx)
Kathy D. Smith (via FedEx)
Tim Maguire (via e-mail)
Jeffrey Tobias (via e-mail)

WDC 348541v1

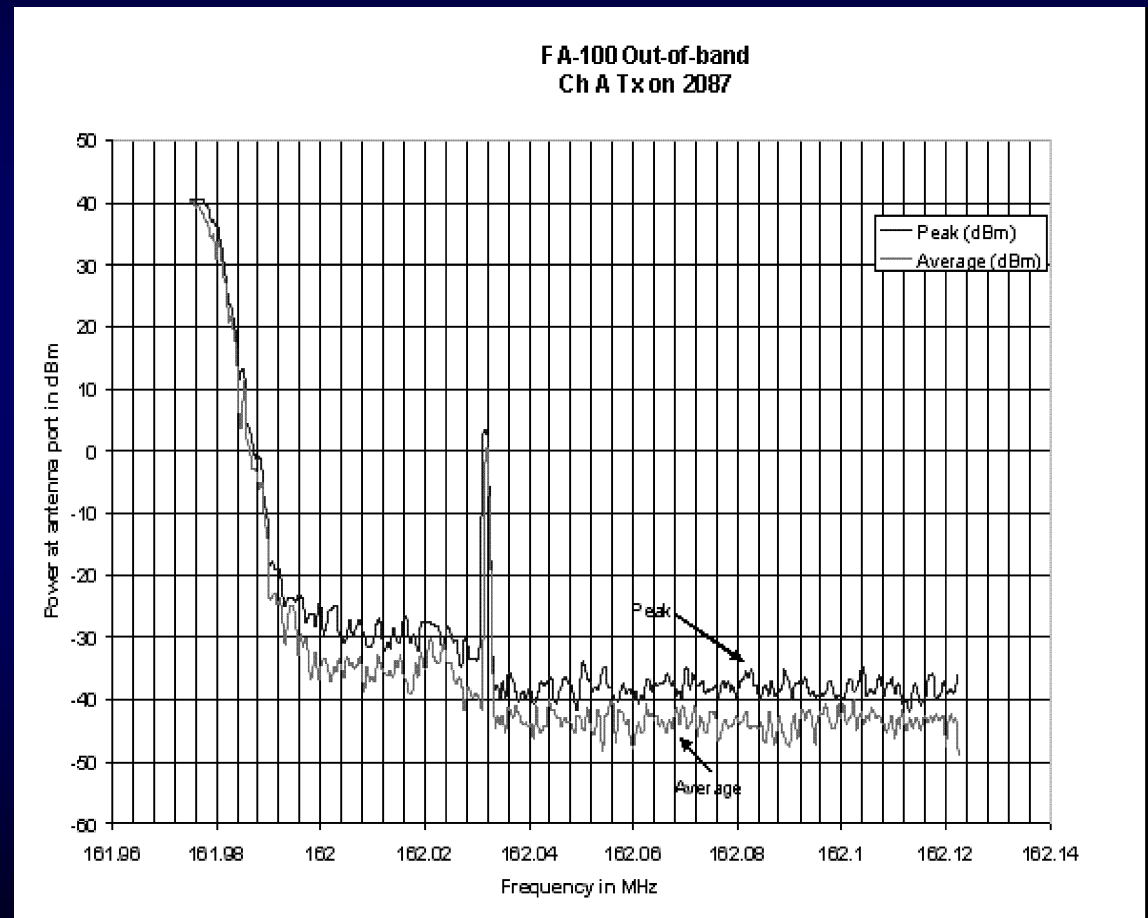


Maritime Data Devices

FCC Wireless Telecommunications Bureau

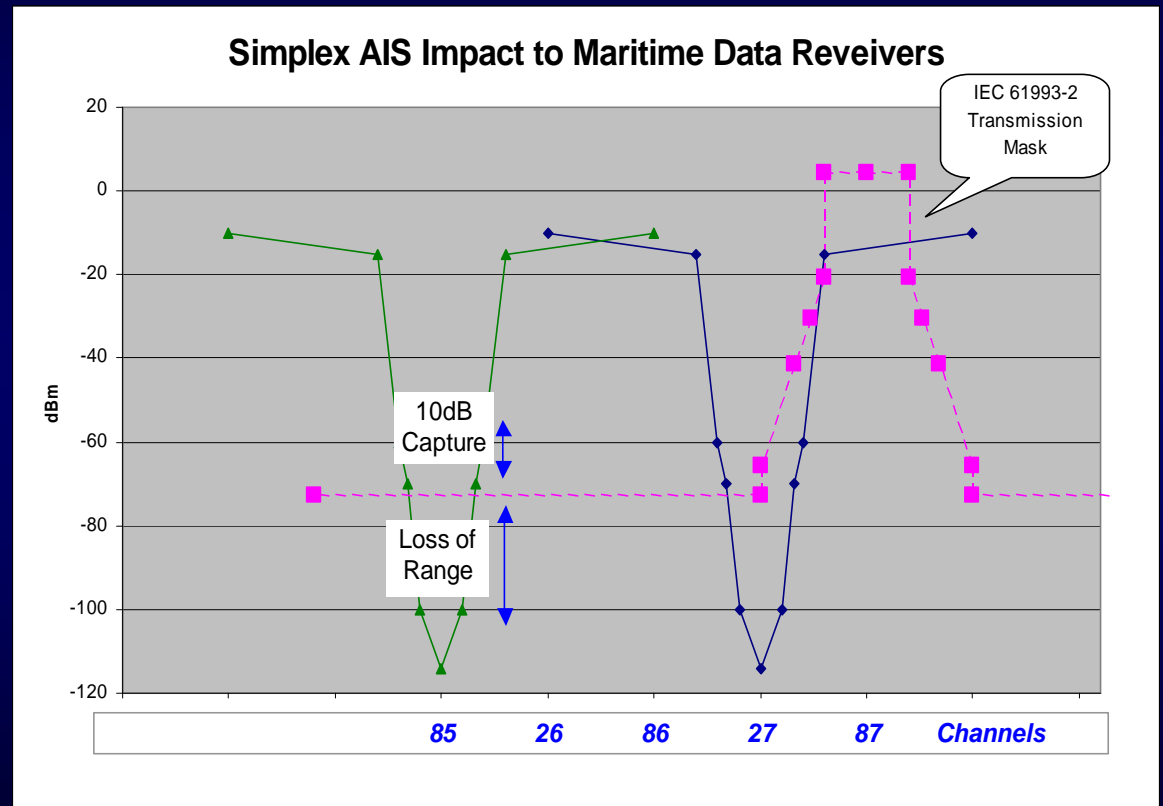
April 22, 2004

- Contemplates the impact to maritime data devices from simplex AIS.
- Device development must assume AIS devices complies with “intended” AIS emissions mask
- Simplex AIS impacts all other maritime channels on or near to an AIS equipped vessel.



Best Case Design Assumptions

- Assumes the IMO guidelines of 10m antenna separation on every vessel.
- Recognizing that AIS devices transmit less than 0.5% of the time, during transmission, B side receivers experience:
 - Loss of Range equal to interference level + 10dB capture
 - Abnormally high power levels on the B side



- Independent MariTEL testing and JSC simulations reflect the same results.
 - Testing and Simulation primarily based on RF Neulink device.
 - Results show significant widespread interference to data operation on channels near to simplex AIS.
 - Highlights difficulty of transmitting to a vessel equipped with simplex AIS.
- The JSC report recommends further studies to determine appropriate mitigation techniques including:
 - Design of a device with FEC
 - Determine effect of other RF parameters on receiver



- Explore technical options for maritime data devices to co-exist on the same vessel with simplex AIS:
 - Utilize “off the shelf” data devices
 - Maximize data throughput on maritime channels
 - Overcome Simplex AIS interference
 - High Transmit power on the B side (gt 0 dBm power due to inadequate shipboard installation.)
 - Maximize reliability and range
- Potential solutions include:
 - Filtering techniques, more stringent vessel installation requirements, or changes to type acceptance for AIS devices – requires FCC and USCG action.
 - Forward Error Correction (FEC) codes
 - Integrated AIS / Maritime Data Device

Change AIS Implementation





- Improvements to RF isolation, AIS standards and/or shipboard installations guidelines to minimize simplex AIS interference are technically the most practical solutions.

Design Criteria		Comments
Off –the-shelf device	<input checked="" type="checkbox"/>	Can use a variety of “readily available” data devices.
Maximize data throughput	<input checked="" type="checkbox"/>	Maximizes throughput and facilitates more commercially attractive higher throughput systems.
Overcome Simplex Interference		
- High Transmit Power	<input checked="" type="checkbox"/>	Can largely eliminate the impact of simplex AIS.
- Maximize reliability and range	<input checked="" type="checkbox"/>	Can largely eliminate the impact of simplex AIS.

- FEC codes alone cannot technically overcome AIS interference and does not meet commercial design criteria.

Design Criteria		Comments
Off –the-shelf device	X	FEC codes are designed for specific interference characteristics Ex: (31, 19) RS FEC code, interleave depth of 16. No device available today with necessary FEC codes. Requires time and \$'s to develop a new device.
Maximize data throughput	X	The JSC recommended FEC, reduces throughput by roughly 40% on a 21 kbps system and is incompatible with more commercially attractive higher throughput systems targeted to operate at greater than 64 kbps. FEC codes reduces data throughput 100% of the time rather than the 0.5% of the time that the AIS device is transmitting..
Overcome Simplex Interference		
- High Transmit Power	X	Simplex transmission in the duplex band leaves near-by receivers susceptible to High RF levels of interference. Developers unsure whether such a device can be developed.
- Maximize reliability and range	<input checked="" type="checkbox"/>	AIS optimized FEC codes can improve reliability and range, but with substantially reduced throughput.

- Integrated device minimizes interference issues by “working around” AIS transmissions.
 - An AIS device does not transmit 99.5 % of the time
 - Eliminates destruction of adjacent channels 27 and 28
- Requires adoption of the MariTEL Sharing Proposal framework to implement commercially.
- Requires favorable regulatory environment

Design Criteria		Comments
Off –the-shelf device		No integrated devices exist today. Requires time and \$’s to develop, however, this device is not precluded in current Class B standards. Requires new type acceptance rules. Precludes serving mandatory carry Class A vessels.
Maximize data throughput		Maximizes throughput and facilitates more commercially attractive higher throughput systems.
Overcome Simplex Interference		
- High Transmit Power		Coordination of AIS transmission with receiver activity minimizes the impact of High Transmit Power.
- Maximize reliability and range		By not receiving when AIS is transmitting, provides consistent reliability and range.

- MariTEL's license obligation requires priority to marine originating communications. MariTEL cannot use off-the-shelf data technology to communicate with vessels equipped with simplex Class A AIS devices.
- Several options are available to alleviate this technical incompatibility.
- Option 1: Fix / Improve AIS RF interference characteristics
 - Removes need for MariTEL to overcome AIS interference thereby allowing use of "off the shelf" data devices for maritime applications.
 - Facilitates immediate implementation of maritime data services
- Option 2: New product relying on FEC codes
 - This solution is not technically or commercially viable
- Option 3: New integrated Class B AIS / wireless data device
 - Technically and commercially viable solution
 - Time and \$'s to develop and deploy
 - Requires favorable regulatory environment

If the Commission mandates simplex AIS technology within MariTEL's licensed band, the decision of how to alleviate AIS interference can not be overstated.

- The Commission can choose to minimize AIS inference by modifying US AIS technical and shipboard installation guidelines.
- Alternatively, the Commission can ignore the clear evidence of AIS interference thereby:
 - Precluding MariTEL from serving any of the most commercially viable Class A equipped vessel with maritime data services; including 15,000 vessels currently covered by mandatory carriage rules plus any future mandatory Class A equipped vessels.
 - Requiring MariTEL to expend additional time and \$'s developing custom maritime data products specifically to overcome AIS interference; for less commercially viable market segments.
- MariTEL encourages the commission to specify a long-term solution for an equitable use of maritime spectrum for both AIS and non-AIS uses.